

Date: Friday, 2/23/2007 1:47:50 PM
 User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD TUBE ASSEMBLY
Job Number	: 30926		
Estimate Number	: 10467		
P.O. Number	: N/A	Part Number	: D3391021
This Issue	: 2/23/2007	S.O. No.	: N/A
Prsht Rev.	: NC	Drawing Number	: D3391 UNDER REVIEW 07.02.26 <i>EL</i>
First Issue	: N/A	Project Number	: N/A
Previous Run	: 30925	Drawing Revision	: EF
	Type : MACHINED PARTS	Material	: N/A
Written By	:	Due Date	: 3/21/2007
Checked & Approved By	: <i>AD 07.02.26</i>	Qty:	1 Um: Each
Comment	: Est. A 06.09.13 New issue KJ/JLM Est. B 06.02.10 Dwg rev.D ecn 773 EC Est. C 06.05.02 Added inspections EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	D6013047	SKIDTUBE MAT'L
-----	----------	----------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description
1	D6013-047	Extrusion

Batch: *b 26547*

JO 7-3-22

2.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
-----	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

JO 7-3-8

3.0	BENDING	BENDING MACHINE
-----	---------	-----------------



Comment: No bender

Bend as per Dwg D3391 Using Bend Prog 3391021

EL 7-3-28

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------



Comment: INSPECT WORK TO CURRENT STEP

BC 07.04.02

5.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
-----	-------	--------------------------------



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. *AA* & Dwg D3391 Rev. *E*

Identify as D3391-1

2-Deburr

*BC 07.04.02**CU*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:50 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30926

Part Number: D3391021

Job Number:



Seq. #

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

RG 07-04-02

①

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

J.L. 07/04/02

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c/sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 & DT8878

6--Deburr

> NIA check new w/o's

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

For 04-20 @

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

M.L.

07/04/02

①

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

For 04-23 @

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

J.L.

07-04-23

①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
7-4-4	8	Wearplate holes drilled on 3391-023 W/O. changes have been made to new ^{work} order.	DP	7-4-4		<i>[Signature]</i> 07-01-20	<i>[Signature]</i> 07-01-20

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
			<i>[Initial]</i>					

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:50 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30926

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description:

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M.L. 07/04/23 ①

14.0

NAS1330C3KB166

INSERT



Comment: Qty.: 14.0000 Each(s)/Unit Total: 14.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

NAS1330C3KB166

Insert

M103278

*

15.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg

FL 07/04/27 ①

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07.05.01 ①

17.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Tow Cap Assembly

Pick:

Qty

Part Number

Description

Batch

D3401-041

Tow Cap

B31346

TURN OVER →

18.0

AN3C4A

BOLT



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

AN3C4A

Bolt

M103585 ⑧x

M103691 ②x *

*

19.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Washer

Pick:

Qty

Part Number

Description

Batch

M.L. 07/05/03

①

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
07.05.03	17.0	PER D3391 Rev F D3564-13 Wearplate (1) <u>B31398</u> D3566-13 Gasket (1) <u>B31348</u>	RL 07.05.03				

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: ☒ Date: 07/05/14
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:50 PM

User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30926

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description:

4

NAS1515H3L

Washer

M 103641

20.0

AN960C10L

washer



Comment: Qty.: 40000 Each(s)/Unit Total: 40000 Each(s)
washer 10 07-05-03 10

M 104215

21.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1
Install tow Cap as per Dwg D3391
Identify as D3391-021

M.A.

22.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP
Inspect thread of each insert using DT8821

20705.7

23.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Identify and Stock
Location:

PPP 031709

7/5/11 Sd

24.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

20705/14

Job Completion



U 07-05-14

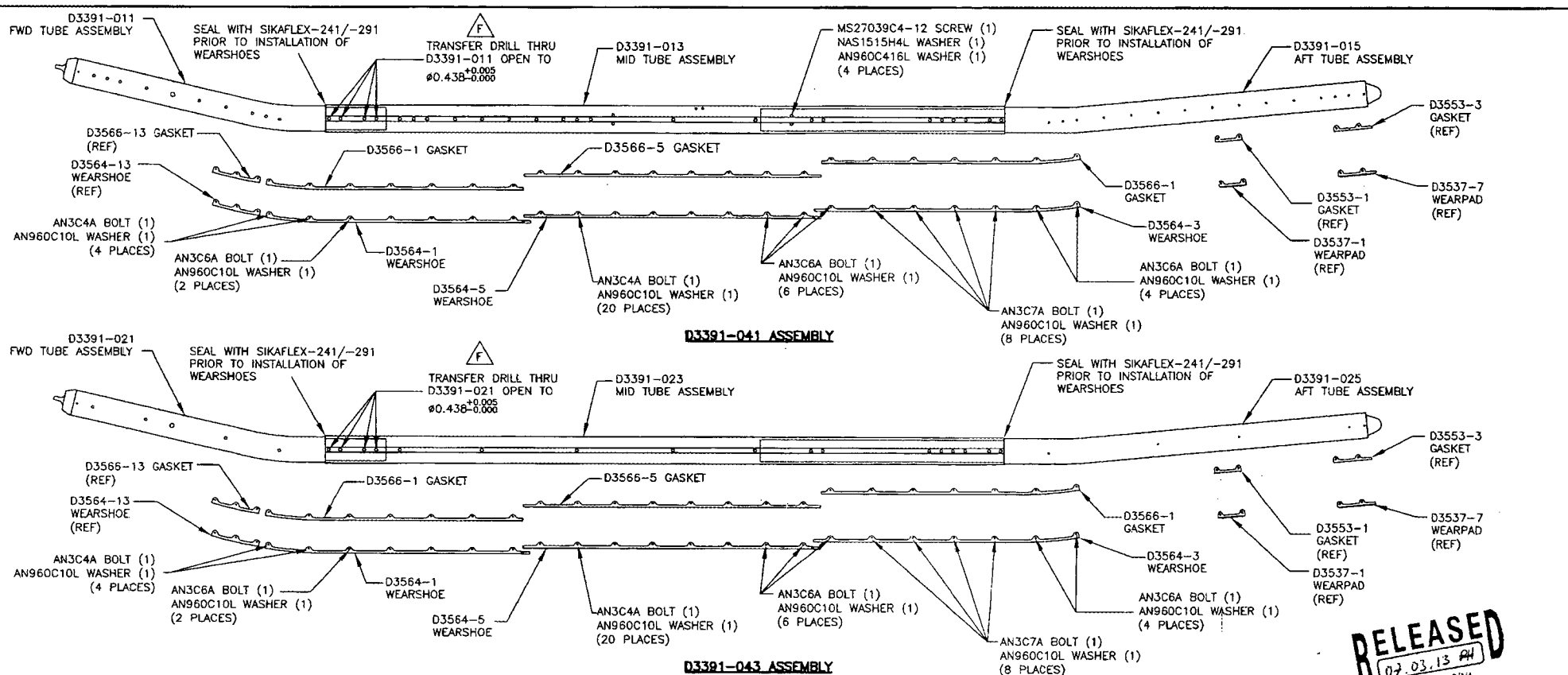
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-043		
X	X	D3391-041	Float Skidtube Assembly
		D3391-043	Float Skidtube Assembly
1	1	D3391-011	FWD TUBE ASSEMBLY
1	1	D3391-013	MID TUBE ASSEMBLY
1	1	D3391-015	AFT TUBE ASSEMBLY
1	1	D3391-021	FWD TUBE ASSEMBLY
1	1	D3391-023	MID TUBE ASSEMBLY
1	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4	4	MS27039C4-12	SCREW
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER

GENERAL NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS. C/SINK #0.391/#0.425 x 100" AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

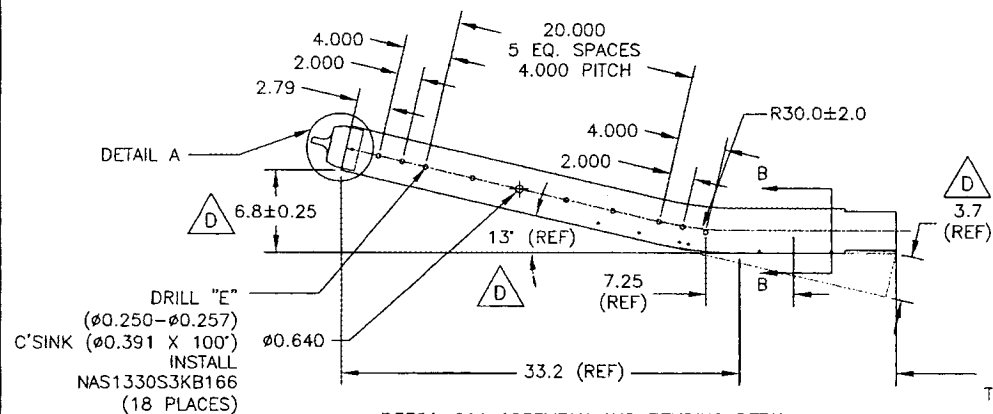
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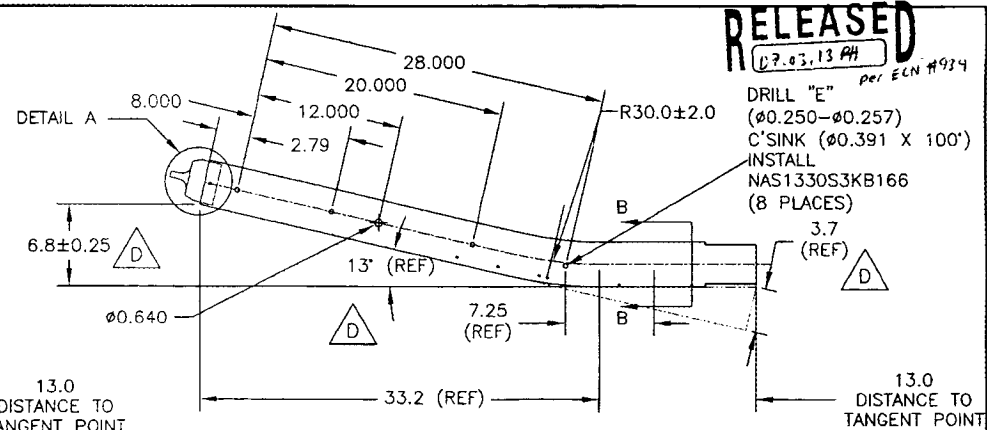
F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	DRAWN BY	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED	APPROVED	DRAWING NO. D3391
DATE	TITLE	REV. F SHEET 1 OF 5 SCALE NTS
07.01.18	412 FLOAT SKIDTUBE	

RELEASED
07.03.13 RH
PAR EGN #934

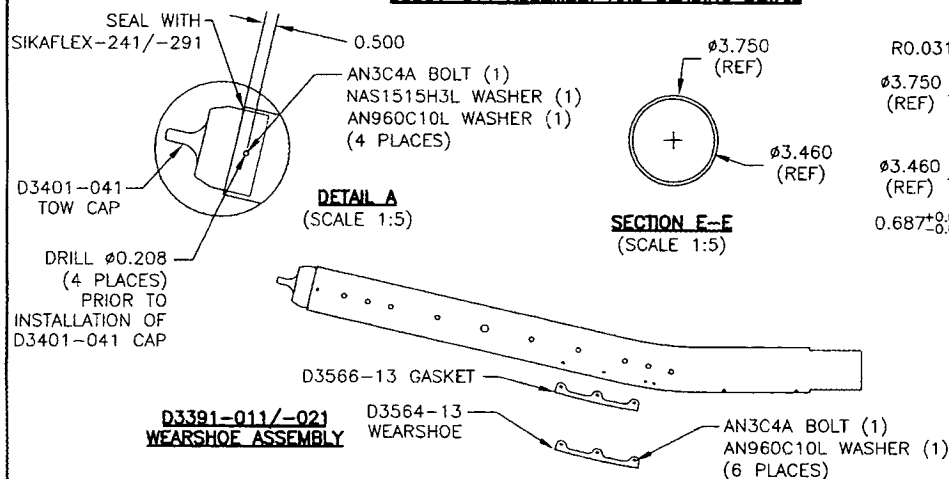
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 67.03.13 PH per ECN #934



D3391-011 ASSEMBLY AND BENDING DETAIL



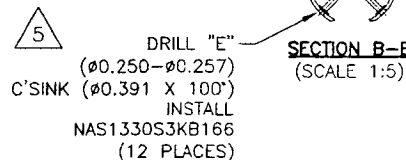
D3391-021 ASSEMBLY AND BENDING DETAIL



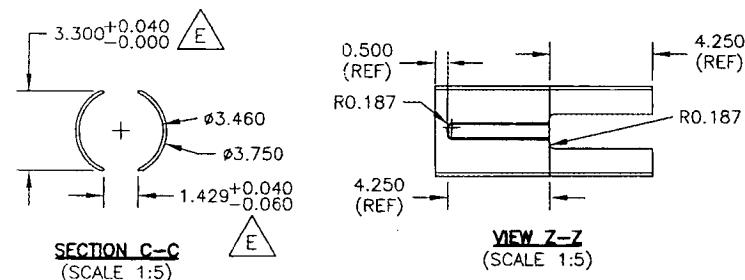
D3391-011/-021 WEARSHOE ASSEMBLY

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

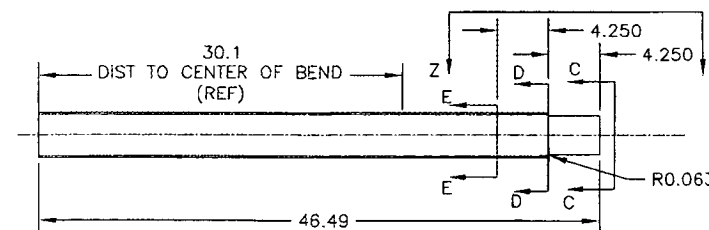
QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X	X	D3391-011	FWD TUBE ASSEMBLY
		D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)



SECTION B-B (SCALE 1:5)

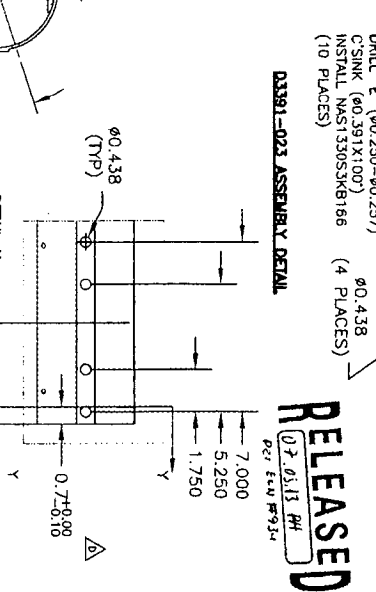
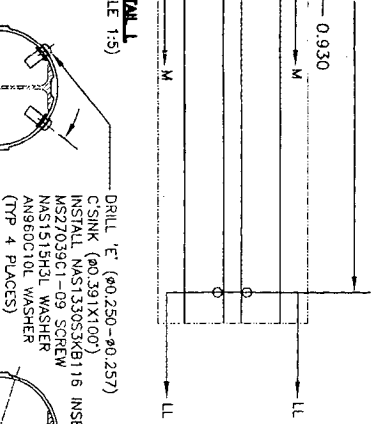
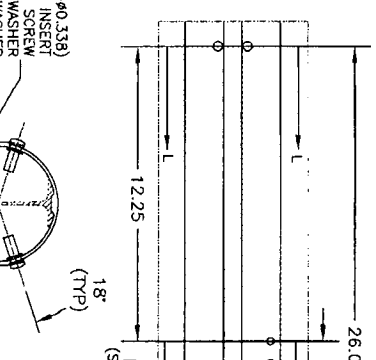
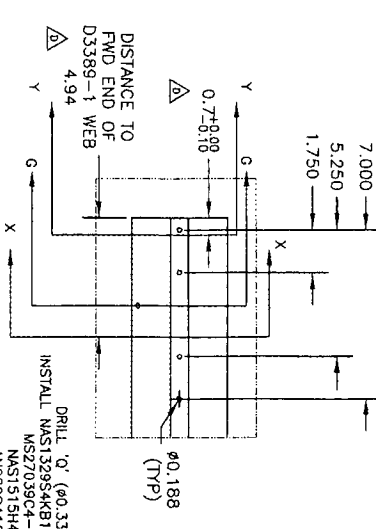
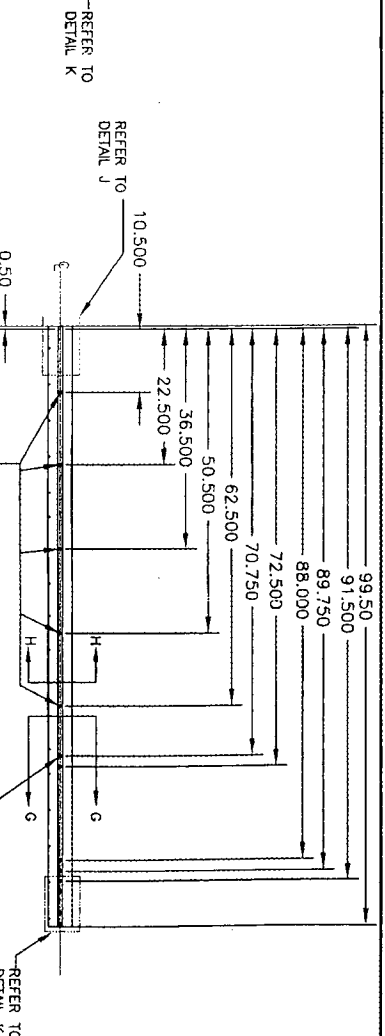
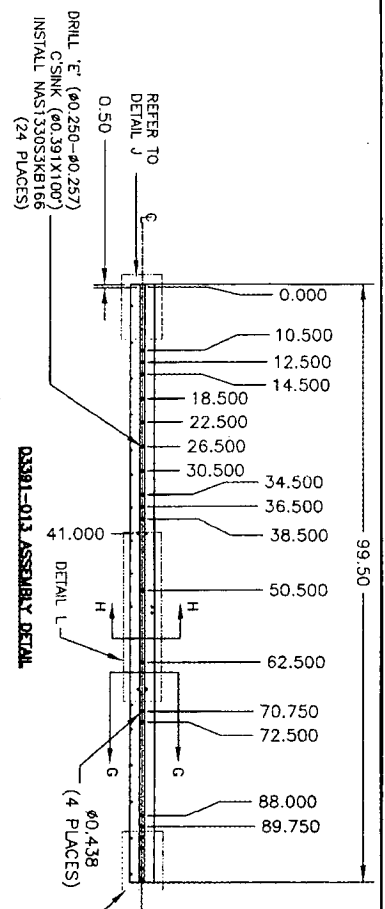


VIEW Z-Z (SCALE 1:5)



D3391-1 DRILLING AND CUTTING DETAIL (MAKE FROM D6013-047 SKIDTUBE MATERIAL)

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CHECKED A	APPROVED A	DATE 07.01.18	DRAWING NO. D3391	REV. F SHEET 2 OF 5
TITLE 412 FLOAT SKIDTUBE			SCALE 1:10	



D3391-013-023 MID TUBE ASSEMBLY PARTS LIST

QTY -	QTY -	PART NUMBER	DESCRIPTION
013	023		
X	X	D3391-013	MID TUBE ASSEMBLY
X	X	D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS133053KB116	INSERT (OR NAS133053KB116)
24	10	NAS133053KB166	INSERT (OR NAS133053KB166)
4	4	NAS13285KB140	INSERT (OR NAS13285KB140)
4	4	NAS1515H4L	WASHER
4	4	AN980C10L	WASHER
4	4	NAS1515H4L	WASHER
4	4	AN980C41BL	WASHER
4	4	MS27039C1-09	SCREW
4	4	MS27039C4-08	SCREW

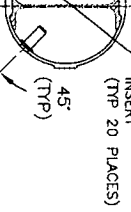
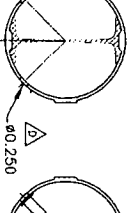
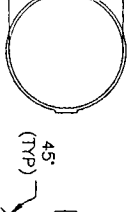
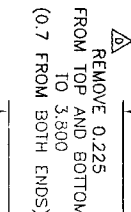
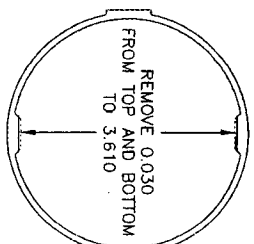
SECTION L-L
(SCALE 1:4)

SECTION M-M
(SCALE 1:4)

SECTION U-U
(SCALE 1:4)

SECTION V-V
(SCALE 1:4)

SECTION W-W
(SCALE 1:4)



- 1) MATERIAL MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SKATLEX-241/-291 PER QSI 015

SECTION X-X
(SCALE 1:2)

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DESIGN BY **PH** DRAWN BY **PH** CHECKED BY **PH** APPROVED BY **PH**

DATE 07.01.18

DRAWING NO. D3391

TITLE 412 FLOAT SKIDTUBE

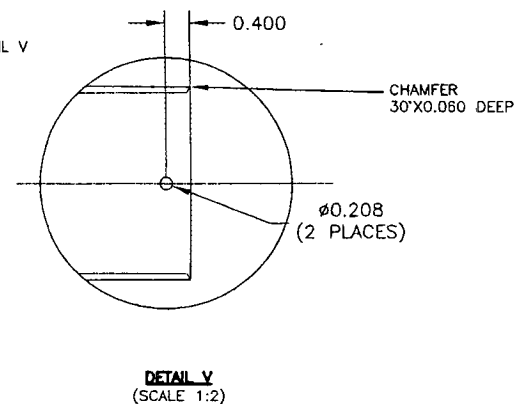
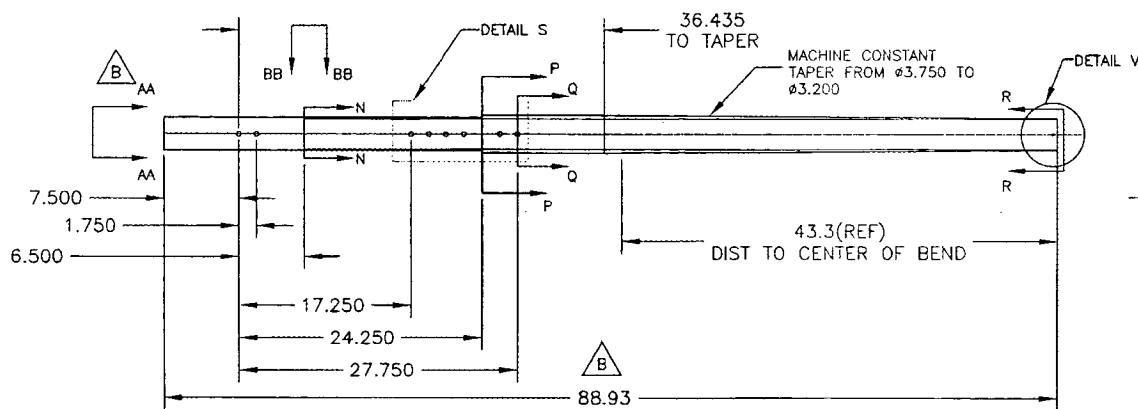
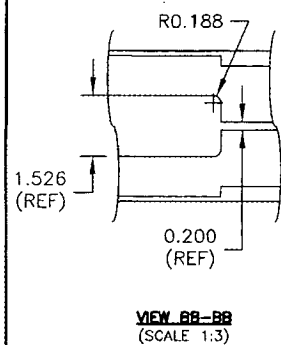
DART DART Aerospace USA, Inc. Fort Belvoir, WA

REV. F

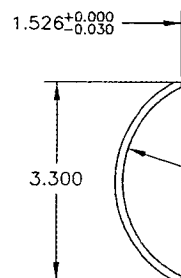
SHEET 3 OF 5

SCALE 1:20

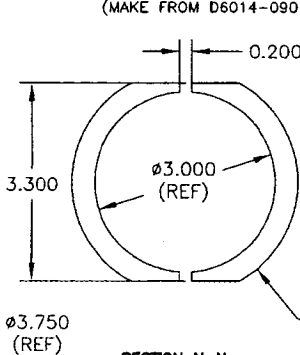
RELEASED
07.05.13
Per EOP 934



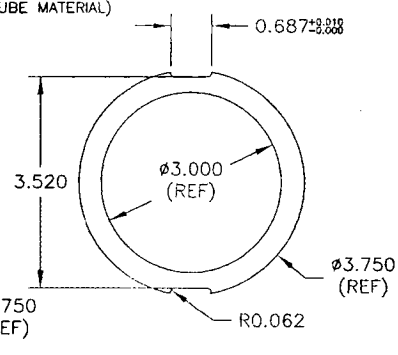
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



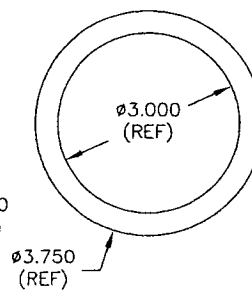
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(SCALE 1:2)



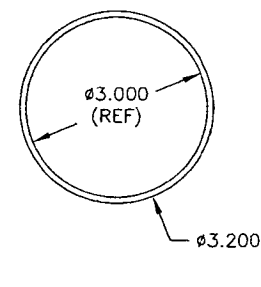
SECTION N-N
(SCALE 1:2)



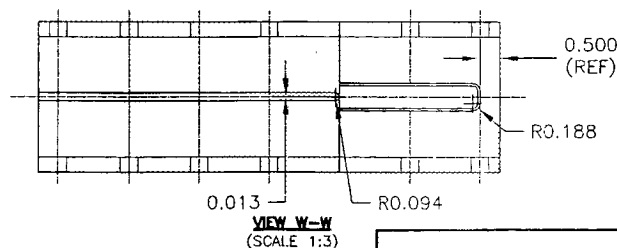
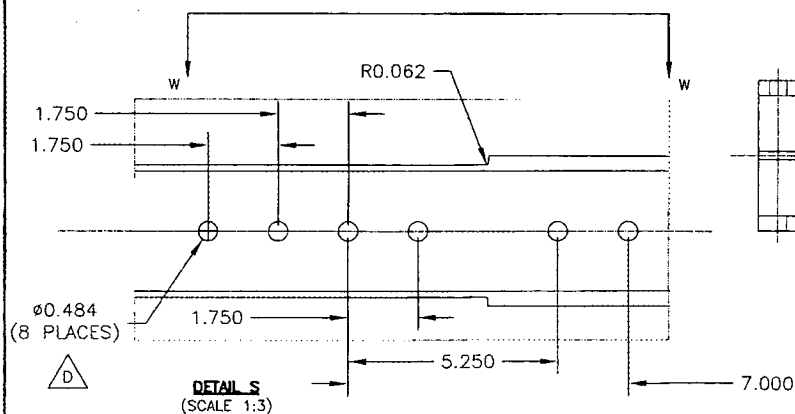
SECTION P-P
(SCALE 1:2)



SECTION Q-Q
(SCALE 1:2)



SECTION R-R
(SCALE 1:2)



RELEASED
07 03.13 AH
per ECU #934

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DESIGN
CHECKED
DATE
07.01.18

DRAWN BY
APPROVED

DART DART AEROSPACE USA, INC.
PORT HADLOCK, WA
DRAWING NO.
D3391
TITLE
412 FLOAT SKIDTUBE
REV. F
SHEET 4 OF 5
SCALE
1:12

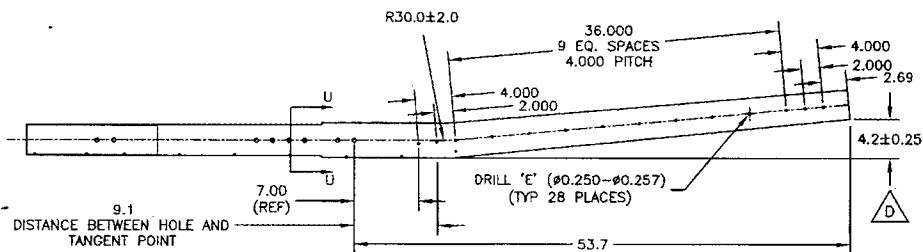
DART AEROSPACE LTD	Work Order:	31308
Description: Float Skidtube (412)	Part Number:	D3391-1
Inspection Dwg: D3391 Rev: E F 22.03.20		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

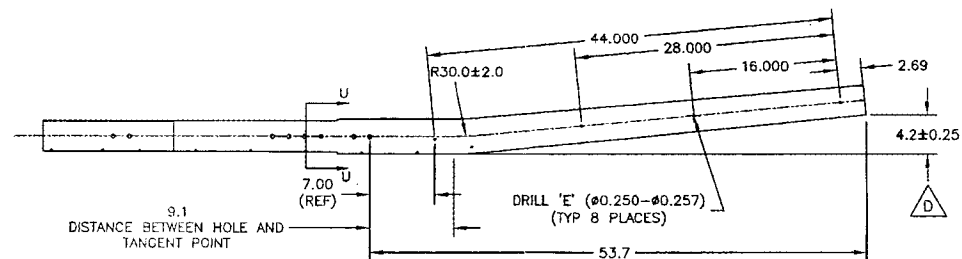
[illegible]

Measured by: <i>BC</i>	Audited by: <i>J.L</i>	Prototype Approval: N/A
Date: <i>07-04-02</i>	Date: <i>07/04/02</i>	Date: N/A

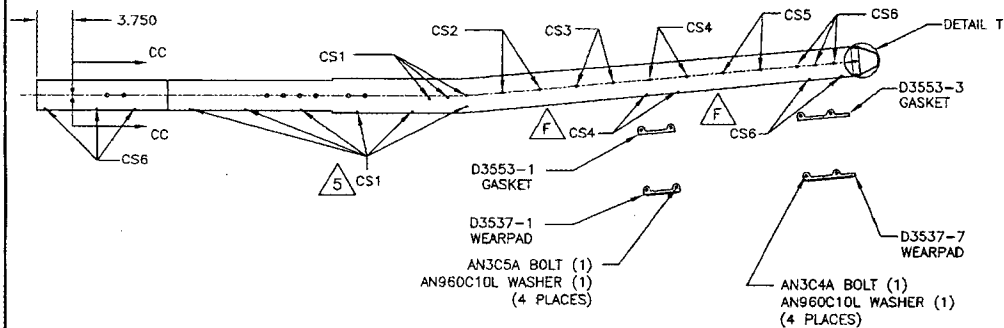
Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	



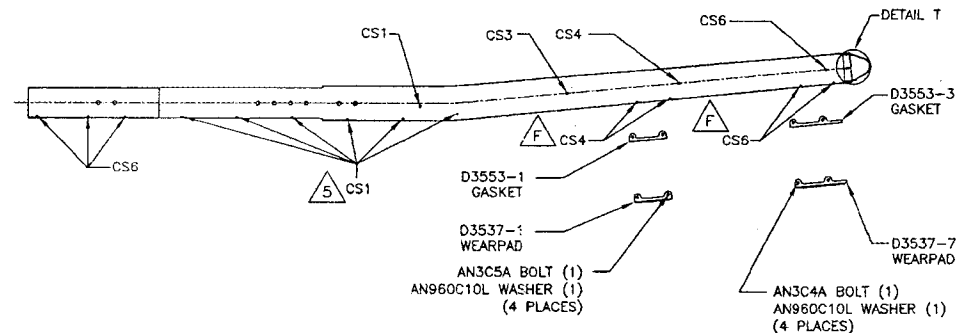
D3391-015 BENDING AND ASSEMBLY DETAIL



D3391-025 BENDING AND ASSEMBLY DETAIL



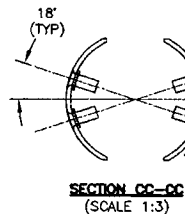
D3391-015 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)



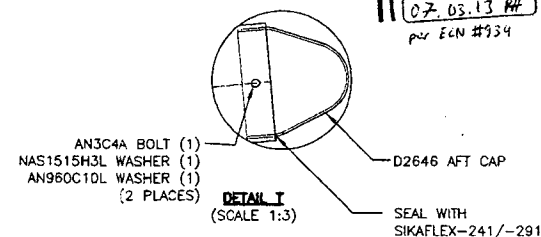
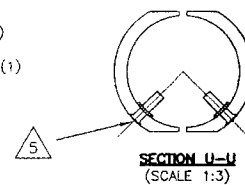
D3391-025 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER



DRILL 'Q' (Ø0.332-Ø0.338)
C'SINK (Ø0.529X100')
NAS1330S4KB151 INSERT (1)
(4 PLACES)



C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	PIN
CS1	18	14	Ø0.425	NAS1330S3KB366
CS2	4		Ø0.391	NAS1330S3KB366
CS3	4	2	Ø0.391	NAS1330S3KB316
CS4	8	6	Ø0.391	NAS1330S3KB266
CS5	4		Ø0.391	NAS1330S3KB216
CS6	16	12	Ø0.391	NAS1330S3KB166

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DESIGN P41	DRAWN BY P41	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA	REV. F
CHECKED H	APPROVED H	DRAWING NO. D3391	SHEET 5 OF 5
DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE	SCALE 1:12

RELEASED
07.03.13 RH
per EON #934